

# New Hampshire Oral Health Data 2006



New Hampshire Department of Health and Human Services

Division of Public Health Services

Bureau of Community Health Services

Rural Health and Primary Care Section

Oral Health Program

# New Hampshire Oral Health Data 2006

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NH Department of Health and Human Services, Division of Public Health Services
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#### MESSAGE FROM THE COMMISSIONER

The oral health of the citizens of the state of New Hampshire is a critical issue to the Department of Health and Human Services. The impact to our state in terms of missed work and school due to poor oral health is staggering. We need to get the message to our residents that taking care of their teeth, gums and mouth is truly important.

The Department is working diligently to improve access to oral healthcare for the people of New Hampshire. We feel this is a significant portion of the overall health picture for the state, and one DHHS takes seriously.

I would like to thank the Division of Public Health Services for their work in producing a comprehensive report on oral health. The Department's dedicated public health staff has done an excellent job in developing a report that identifies both our strengths and those areas where we can improve. They deserve credit for their efforts.

Nicholas A. Toumpas, Acting Commissioner New Hampshire Department of Health and Human Services

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## **EXECUTIVE SUMMARY**

**Dental Visits** – In 2003, 76.5% of adults in New Hampshire had visited a dentist during the past year, similar to the 2004 figure of 76.2%. There were statistically significant associations between visiting a dentist and income and education level. As a person's income and education increased, they became more likely to have seen a dentist in the past year.

**Tooth Loss** -- In 2004, 15.8% of New Hampshire adults had lost 6 or more teeth due to decay or gum disease, a decrease from 17.5% in 2003. Tooth loss was strongly associated with age; in 2003, 23.4% of persons ≥65 years of age had lost all of their teeth. In 2004, that was 21.0%. There were strong associations between tooth loss and both income and education. For example, in 2004, 40.5% of adults aged 65 years and older with income less than 15,000 had lost all their teeth compared to 6.3% of adults with income more than 50,000.

**Fluoridation** -- There are currently 10 communities in New Hampshire that fluoridate their public water supply. Approximately 43% of New Hampshire residents served by a community water system receive fluoridated water.

**Hospital and Community-Based Dental Programs** – In each state fiscal year from 2003 through 2005, nine publicly funded hospital- and community-based dental programs reported that they treated over 12,500 children and adults. Each year, about 25% of children treated in the hospital- and community-based dental programs receive protective dental sealants.

**School-Based Dental Programs** -- During the 2003-2004 school year, there were 17 school-based dental programs in 150 schools in New Hampshire. A total of 7,372 2<sup>nd</sup> and 3<sup>rd</sup> grade students were screened. Among these children, 23% had untreated decay, 49% had a history of decay (i.e., either untreated or treated decay), and 39% had dental sealants.

In school year 2004-2005 the number of school-based dental programs increased from 17 programs in 150 schools to 18 programs serving 171 New Hampshire schools. The number of 2<sup>nd</sup> and 3<sup>rd</sup> grade students screened actually declined to 6,657 due to staffing shortages in several programs. Among the sudents screened, 22% had untreated decay, 47% had a history of decay (i.e., either untreated or treated decay), and 44% had dental sealants.

**Oral Health Status of 2<sup>nd</sup> and 3<sup>rd</sup> Grade Students** -- Results of a statewide survey of 3<sup>rd</sup> grade students in randomly selected schools in 2004 indicated that 24.1% had untreated decay, 51.0% had a history of decay (i.e., either untreated or treated decay), and 42.5% had sealants.

**Oral Cancer** -- Based on most recent data from the state cancer registry, there were 160 new cases of oral cancer in New Hampshire in 2003. Two-thirds of cases occurred in males. There were 50 deaths from oral cancer in the state in 2002. Males comprised 60% of the total.

#### Introduction

With the release of *Oral Health in America: A Report of the Surgeon General* (1), there has been renewed interest in oral health as a public health issue. The Surgeon General's report highlighted the connection between oral health and overall health. It also documented the magnitude of the oral health problem in this country and the marked disparities in oral health among different population groups.

Shortly after release of the Surgeon General's report, the *National Oral Health Surveillance System (NOHSS)* was established.<sup>(2)</sup> An objective of *Healthy People 2010* (#21-16) is to have an oral health surveillance system in every state. NOHSS is a joint effort of the Centers for Disease Control and Prevention and the Association of State and Territorial Dental Directors. The purpose of NOHSS is to monitor the burden of oral health disease, use of the oral health care delivery system, and the status of community water fluoridation. NOHSS includes eight oral health indicators: dental visits, teeth cleaning, complete tooth loss, fluoridation status, caries experience, untreated caries, dental sealants, and cancer of the oral cavity and pharynx.

This document is the fourth compilation of data on oral health from the New Hampshire Department of Health and Human Services. It is an attempt to pull together current information and to make it readily available. The focus of the report is the oral health status of adults and children in New Hampshire and their access to care including preventive services. All eight indicators from NOHSS are included in this report.

These oral health data can be used for multiple purposes: 1) to document the magnitude of the public health problem, 2) to monitor disease trends over time, 3) to detect changes in health care practices, 4) to evaluate prevention strategies, and 5) to facilitate planning. The data in this report can be used in assessing progress towards our goal of improving the oral health of the state's residents.

# **NEW FEATURES IN THIS REPORT**

Since the 2004-2005 school year, all school-, community- and hospital-based oral health programs have incorporated sealant application in their programs' preventive services.

Tables 10 and 11, Hospital and Community-Based Dental Programs, indicate the percent of patients receiving restorative treatment as well as preventive treatment.

For the first time, the oral health data book presents data for more than one year, filling the data gap between the  $3^{rd}$  and  $4^{th}$  editions.

# FREQUENTLY ASKED QUESTIONS

What is a sealant?

A dental sealant is a plastic material that is usually applied to the top surface of permanent molars in children. By filling in the pits and fissures of the tooth, the sealant is effective in preventing cavities. Sealants gained approval from the American Dental Association in the mid-1970's. By 1994, all states had included sealants as a benefit in their Medicaid programs.

What is water fluoridation?

Fluoridation is the controlled addition of a fluoride compound to a public water supply to bring its fluoride concentration to an optimal level to prevent cavities. Numerous studies have shown that a fluoride concentration of approximately 1 part per million in drinking water can be an effective method of preventing tooth decay. Two-thirds of the US population on a public water supply currently receives fluoridated water.

What is edentulism?

Edentulism is the loss of all of a person's natural teeth. Edentulism, especially in the elderly, is often used as a measure of the oral health status of a population. Approximately one-quarter of persons 65 years or older in the United States are edentulous.

Why are data not presented by race or ethnicity?

Based on the 2000 United States Census, New Hampshire's population is approximately 96.0% white, 1.3% Asian, 0.7% African American, 0.2% American Indian, and 1.7% persons reporting some other race. About 1.7% of the population is of Hispanic or Latino origin. Because no single racial or ethnic minority group exceeds 1.7% of the total population, the number of oral health-related events in these groups is too small to allow meaningful analysis. As the state's demographics change and as data collection techniques improve, it may be possible to present data on racial and ethnic minorities.

What are the Centers for Disease Control and Prevention?

The Centers for Disease Control and Prevention (CDC) are part of the United States Department of Health and Human Services. CDC is considered the nation's prevention agency; it focuses on public health measures to prevent disease, disability, and death. CDC provides funds and guidance to states for their oral health efforts.

I would like to see data for a specific town, but cannot find this information in the report. Why doesn't this report show town-level data?

New Hampshire has a relatively small population of 1.3 million people divided among 234 cities and towns. In a given year, the number of oral health-related events is too small to generate meaningful results at a town level.

Some of the information in the report is identified as "age-adjusted". What does this mean and why is it done?

To compare populations where the distribution of age groups is different, an adjustment needs to be made. For example, the rate of cancer in New Hampshire may appear higher than that of the United States. However, this may be due to New Hampshire having proportionally more older people than the United States. By age-adjusting the data using the 2000 United States standard population, the rates can be compared without concern about differences in the age distribution of the two populations.

# **METHODS**

Data from surveys are presented with 95% confidence intervals. Because the data were collected from a sample of the population, each estimate has a margin of error. The confidence interval reflects the degree of uncertainty for each estimate. For example in Table 1, 77.3% of respondents reported having their teeth cleaned in the past year with a 95% confidence interval of 75.8% - 78.7%. This can be interpreted to mean that our best estimate is that 77.3% of adults in New Hampshire had their teeth cleaned during the previous 12 months, but the range that is likely to capture the true value 95% of the time could be as low as 75.8% or as high as 78.7%. In other words, the estimate from the survey has a margin of error of +/- 1.4%.

When national BRFSS data are reported, the median % (middle value) is used as a measure of central tendency. As such, the value has no confidence intervals.

Where appropriate, oral health-related objectives from *Healthy People 2010* or *Healthy New Hampshire 2010* are given to put current data from New Hampshire in perspective. *Healthy People 2010* is a set of national health targets for the next decade. *Healthy New Hampshire 2010* is a set of state-specific health targets.

#### DATA SOURCES

## Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is a population-based, random-digit dialed telephone survey of civilian, non-institutionalized adults, aged 18 years and older. The survey is coordinated by the Centers for Disease Control and Prevention (CDC) and is conducted annually by all states. In New Hampshire, the Health Statistics and Data Management Section is responsible for the survey. The BRFSS includes questions on health behavior risk factors such as safety belt use, diet, weight control, oral health, diabetes, alcohol use, physical exercise, and preventive health The data are weighted to more accurately reflect the population by accounting for age, gender, and probability of selection. A core set of questions, including those related to oral health, is asked every three years. Additional questions on oral health can be asked annually in an optional module. In New Hampshire, 5,065 interviews were completed in 2004. For 1999, the national estimates were calculated as a mean by pooling all BRFSS data as a sample of the nation as a whole. For 2004, the national estimates were simply a calculation of the middle value of all the state estimates New Hampshire and national data can be accessed on line at: (the median). http://www.cdc.gov/brfss/. Information on edentulism among the elderly based on BRFSS data is available at http://www.cdc.gov/nohss/.

# Healthy People 2010

Healthy People 2010 is a set of national health targets for the next decade. It builds on initiatives pursued over the past two decades including the 1979 Surgeon General's Report, Healthy People, and Healthy People 2000: National Health Promotion and Disease Prevention Objectives. It is designed to achieve two overarching goals: 1) increase quality and years of healthy life; and, 2) eliminate health disparities. A copy of Healthy People 2010 can be obtained on-line at: <a href="http://www.health.gov/healthypeople/">http://www.health.gov/healthypeople/</a>.

#### Healthy New Hampshire 2010

Healthy New Hampshire 2010 is New Hampshire's health promotion and disease prevention agenda for the first decade of the 21<sup>st</sup> century. Similar to Healthy People 2010, it is a compilation of health objectives for the next decade. A copy of Healthy New Hampshire 2010 can be obtained on-line at: <a href="http://www.healthynh2010.org/">http://www.healthynh2010.org/</a>.

## Hospital- and community-based dental programs

In 2003-2004, there were nine hospital- or community-based dental programs in New Hampshire; in 2004-2005 there were 10 programs. These programs see dental patients who would otherwise have no access to dental care. Both restorative and preventive services are provided in these programs.

# School-based dental programs

During 2003-2004, there were 17 school-based dental programs in 150 schools in New Hampshire; in 2004-2005 there were 18 programs in 171 schools. Approximately 50% of 2<sup>nd</sup> and 3<sup>rd</sup> grade students in New Hampshire public schools are being screened annually in school-based dental programs. Programs receive funding from a variety of sources: local charities, the state Oral Health Program, hospitals, and local government. Most programs focus their efforts on children who have no usual source of dental care. Preventive services, such as oral health education, proper nutrition, fluoride and sealants, are emphasized in most programs.

#### State Cancer Registry Data

Statistical information on newly diagnosed primary cancers is reported to the New Hampshire State Cancer Registry. This database is comprised of information on reportable cancers from New Hampshire acute care hospitals and their tumor registries, medical records departments, oncology departments, physicians, and private pathology laboratories. The Registry has agreements for exchange of case information with the states of Massachusetts, Maine, Vermont, Rhode Island, Connecticut, New York, and Florida. The New Hampshire State Cancer Registry is operated by the Norris Cotton Cancer Center under a contract between the State and Dartmouth Medical School. The Health Statistics and Data Management Section in the New Hampshire Department of Health and Human Services analyzes the records of newly diagnosed cases of cancer (incidence data) collected by the New Hampshire State Cancer Registry.

## Third Grade Oral Health Survey

The statewide survey was conducted from September 2003 to April 2004. The survey design was adopted from a standard protocol in *Basic Screening Surveys* (8). The survey sample was selected using *PC Sample* software that utilizes probability proportional to size sampling. The sample consisted of 46 schools with 872 students enrolled in selected classrooms. Forty-two (91.3%) schools participated in the survey, and 597 (68.5%) students were examined. The overall response rate (school response rate x student response rate) was 62.5%.

#### Vital Statistics

New Hampshire law requires that reports of all birth, death, fetal death, marriage, and divorce be filed with the office of the State Registrar in the Division of Vital Records Administration of the Department of State. The Health Statistics and Data Management Section analyzes these data. Depending on the event, filings are made by hospital personnel, physicians, funeral directors, city/town clerks, attorneys, and clerks of the courts. Reports of New Hampshire resident births and deaths in other states, and Canada,

are provided to the State Registrar, for statistical purposes only, under an interstate/Canadian agreement for the exchange of vital events information.

For death certificates, the cause of death reported is the underlying cause of death. In a death record, the underlying cause of death is the specific disease, condition, or injury that initiated the chain of events leading to death. The underlying cause of death is not always the same as the immediate cause of death. For example, if a person was hospitalized for oral cancer, but developed pneumonia and died while in the hospital, the underlying cause of death would be oral cancer.

#### Water Fluoridation Reporting System

The Water Fluoridation Reporting System (WFRS) is maintained by the Centers for Disease Control and Prevention, the New Hampshire Department of Health and Human Services, and the New Hampshire Department of Environmental Services. The data are currently being updated. The system contains fluoridation information for each public water system in the state. Additional information is available on-line at: http://apps.nccd.cdc.gov/mwf/index.asp

## Youth Tobacco Survey

During October and November of 2004, the New Hampshire Youth Tobacco Survey (NHYTS) was conducted in public middle and high schools. Middle school was defined as grades six through eight, and high school as grades nine through twelve. A two-stage cluster sample design was used to produce a representative sample of students. In the first stage, 50 middle schools and 50 high schools were randomly selected. In the second stage, classes were randomly selected from within the participating schools. All students in the selected classes were eligible to participate. The 2004 NHYTS used a pencil and paper questionnaire consisting of 78 multiple-choice questions. Students completed a self-administered questionnaire in the classroom, recording their answers on an answer sheet. Results were obtained anonymously and the overall response rate was 75.6% for middle schools and 73% for high schools.

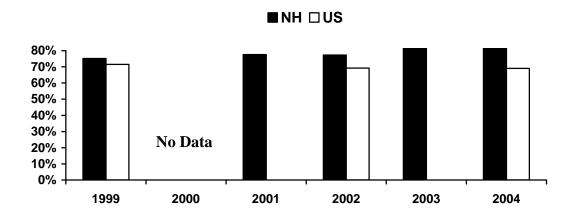
Table 1. Adults who reported having their teeth cleaned by a dentist or dental hygienist within the past year – New Hampshire, 2003

	Percent	95% Confidence Interval
All	77.3	75.8-78.7
Male	74.4	72.0-76.8
Female	80.0	78.2-81.8
18-24 years	70.8	64.4-77.3
25-34 years	70.1	66.2-74.1
35-44 years	77.6	74.8-80.4
45-54 years	80.4	77.7-83.1
55-64 years	82.3	79.2-85.4
65+ years	80.6	77.2-84.0
<\$15,000	56.9	49.7-64.0
\$15,000-24,999	61.1	55.8-66.5
\$25,000-34,999	70.8	65.8-75.8
\$35,000-49,999	77.8	74.4-81.2
\$50,000+	84.1	82.0-86.1
<12 years of education	53.2	45.4-61.0
12 years of education	68.0	64.7-71.4
13-15 years of education	80.2	77.6-82.8
16+ years of education	85.2	83.2-87.1

Table 2. Adults who reported having their teeth cleaned by a dentist or dental hygienist within the past year – New Hampshire, 2004

	Percent	95% Confidence Interval
All	77.9	76.4-79.3
Male	76.5	74.2-78.7
Female	79.2	77.4-81.0
18-24 years	71.1	64.9-77.4
25-34 years	71.9	67.9-75.8
35-44 years	78.5	75.8-81.3
45-54 years	81.5	78.9-84.0
55-64 years	82.9	80.0-85.8
65+ years	80.2	77.2-83.2
<\$15,000	53.2	46.0-60.4
\$15,000-24,999	56.9	51.4-62.3
\$25,000-34,999	67.2	61.8-72.7
\$35,000-49,999	78.9	75.3-82.6
\$50,000+	86.8	85.1-88.5
<12 years of education	48.2	40.4-55.9
12 years of education	74.3	71.4-77.1
13-15 years of education	76.1	73.2-79.0
16+ years of education	86.1	84.3-87.9

Figure 1. Adults who reported having their teeth cleaned by a dentist or dental hygienist within the past year – New Hampshire, 1999-2004 and United States, 1999, 2002 and 2004



**Comment:** There were statistically significant associations between teeth cleaning and income and education level. Those with higher incomes were more likely to have had an annual cleaning than those with lower incomes. College graduates were more likely to have had their teeth cleaned during the past year than were persons with less education.

**Method:** People who had never visited a dentist or dental clinic and those who had lost all of their teeth were not asked this question.

**Healthy People 2010:** Objective #21-10 is to increase the proportion of children and adults who use the oral health care system each year to 56%. This objective uses data from the Medical Expenditure Panel Survey which is not comparable to data from the Behavioral Risk Factor Surveillance System.

**Healthy New Hampshire 2010:** No objective.

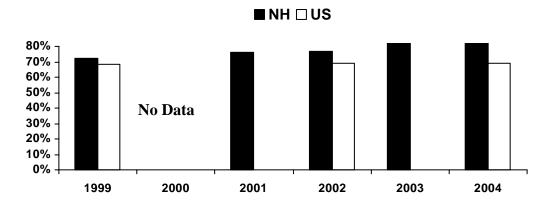
Table 3. Adults who reported visiting a dentist or dental clinic within the past year for any reason – New Hampshire, 2003

	Percent	95% Confidence Interval
All	76.5	75.1-77.9
Male	75.0	72.7-77.2
Female	77.9	76.1-79.6
18-24 years	77.2	71.3-83.1
25-34 years	72.4	68.5-76.2
35-44 years	79.8	77.1-82.4
45-54 years	80.3	77.7-82.9
55-64 years	77.8	74.6-81.1
65+ years	68.8	65.4-72.3
<\$15,000	51.8	45.6-58.0
\$15,000-24,999	58.4	53.5-63.3
\$25,000-34,999	68.8	64.1-73.6
\$35,000-49,999	76.6	73.2-80.0
\$50,000+	85.8	83.9-87.7
<12 years of education	50.8	44.3-57.4
12 years of education	67.0	64.0-70.1
13-15 years of education	80.9	78.5-83.4
16+ years of education	85.6	83.8-87.4

Table 4. Adults who reported visiting a dentist or dental clinic within the past year for any reason – New Hampshire, 2004

	Percent	95% Confidence Interval
All	76.2	74.8-77.6
Male	74.5	72.2-76.7
Female	77.9	76.2-79.6
18-24 years	70.6	64.3-76.8
25-34 years	73.4	69.5-77.3
35-44 years	79.5	76.7-82.3
45-54 years	81.6	79.1-84.1
55-64 years	76.7	73.5-79.8
65+ years	71.3	68.3-74.3
<\$15,000	47.1	40.8-53.4
\$15,000-24,999	55.7	50.8-60.5
\$25,000-34,999	65.1	59.9-70.4
\$35,000-49,999	77.9	74.3-81.4
\$50,000+	86.8	85.1-88.4
<12 years of education	42.5	36.0-49.0
12 years of education	71.8	69.0-74.5
13-15 years of education	76.9	74.1-79.8
16+ years of education	85.8	84.0-87.6

Figure 2. Adults who reported visiting a dentist or dental clinic within the past year for any reason – New Hampshire, 1999-2004 and United States, 1999, 2002 and 2004



**Comment:** There were statistically significant associations between visiting a dentist and age, income, and education. Persons of younger age were more likely to have visited a dentist than persons 65 years old and older. As a person's income increased they were more likely to have seen a dentist in the past year. Increasing educational attainment was also associated with having seen a dentist during the past year.

In 2004, seventy-six percent of adults in New Hampshire reported visiting a dentist or dental clinic in the past year, which compares favorably to the national estimate of 69% from 2004.

**Method:** This question was asked of all survey participants. Data analysis excluded persons who responded "Don't Know/Not Sure" or "Refused" to this question. Data were available for New Hampshire for 1999, 2001-2004, and for the United States for 1999, 2002 and 2004.

**Healthy People 2010:** (Objective #21-10) Increase the proportion of children and adults who use the oral health care system each year to 56%. National data for this objective were obtained from the Medical Expenditure Panel Survey and therefore cannot be compared directly to results from the Behavioral Risk Factor Surveillance System.

**Healthy New Hampshire 2010:** No objective.

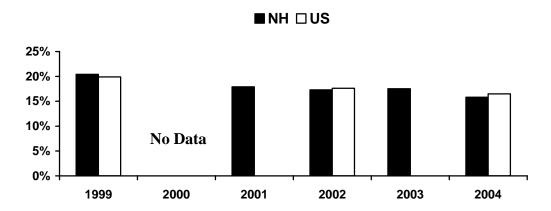
Table 5. Adults who have lost 6 or more teeth due to decay or gum disease – New Hampshire, 2003

	Percent	95% Confidence Interval
All	17.5	16.3-18.7
Male	17.4	15.6-19.2
Female	17.6	16.1-19.1
18-24 years	1.8	0.0-3.7
25-34 years	3.7	2.2-5.3
35-44 years	6.7	5.0-8.5
45-54 years	15.5	13.1-17.8
55-64 years	30.9	27.3-34.5
65+ years	48.8	45.1-52.5
<\$15,000	38.2	32.4-44.0
\$15,000-24,999	31.4`	27.0-35.7
\$25,000-34,999	23.5	19.5-27.5
\$35,000-49,999	19.4	16.3-22.6
\$50,000+	8.6	7.3-10.0
<12 years of education	44.1	37.6-50.5
12 years of education	26.2	23.6-28.8
13-15 years of education	15.3	13.2-17.4
16+ years of education	7.2	6.0-8.5

Table 6. Adults who have lost 6 or more teeth due to decay or gum disease – New Hampshire, 2004

	Percent	95% Confidence Interval
All	15.8	14.8-16.9
Male	15.6	14.0-17.3
Female	16.0	14.7-17.4
18-24 years	0.2	0.0-0.4
25-34 years	3.2	1.7-4.6
35-44 years	6.7	4.8-8.6
45-54 years	15.0	12.6-17.4
55-64 years	27.7	24.5-31.0
65+ years	45.8	42.8-49.3
<\$15,000	41.0	35.1-46.9
\$15,000-24,999	31.0	26.8-35.1
\$25,000-34,999	21.0	16.9-25.1
\$35,000-49,999	16.7	13.8-19.5
\$50,000+	7.0	5.9-8.1
<12 years of education	39.9	33.8-46.0
12 years of education	22.2	19.9-24.5
13-15 years of education	14.5	12.4-16.5
16+ years of education	7.2	6.0-8.4

Figure 3. Adults who have lost six or more teeth due to decay or gum disease – New Hampshire, 1999-2004 and United States, 1999 and 2004



**Comment:** There were strong associations between tooth loss and age, income, and education. Tooth loss, especially edentulism (i.e., loss of all teeth), can reduce quality of life, self-image, and daily functioning; it is preventable with good oral hygiene, fluoridated water, and regular dental care. Patient and provider attitudes towards tooth retention also play an important role.

In 2004, 16% percent of adults in New Hampshire reported having lost six or more teeth due to decay or gum disease, which is approximately the same as the national estimate of 16.5% from 2004.

**Method:** This question was asked of all survey participants. Data analysis excluded persons responding "Don't Know/Not Sure" or "Refused" to this question. Data were available for New Hampshire for 1999, 2001-2004, and for the United States for 1999, 2001 and 2004.

**Healthy People 2010:** The *Healthy People 2010* objective is to increase the proportion of adults aged 35 to 44 years who have never had a permanent tooth extracted because of dental caries or periodontal disease to 42% (#21-3). In 2004 in New Hampshire, 65.6% of persons 35 to 44 years of age had never lost a permanent tooth due to decay or gum disease.

**Healthy New Hampshire 2010:** No objective.

Table 7. Adults aged 65 years and older who have lost all of their natural teeth due to decay or gum disease – New Hampshire, 2003

	Percent	95% Confidence Interval
All	23.4	20.3-26.6
Male	21.4	15.5-26.4
Female	25.0	20.8-29.0
<\$15,000	46.4	36.8-56.0
\$15,000-24,999	28.8	21.7-36.0
\$25,000-34,999	26.1	17.2-35.1
\$35,000-49,999	14.4	6.0-22.8
\$50,000+	4.1	0.8-7.3
<12 years of education	N/A	N/A
12 years of education	33.0	26.9-39.1
13-15 years of education	15.7	10.3-21.1
16+ years of education	9.7	5.9-13.6

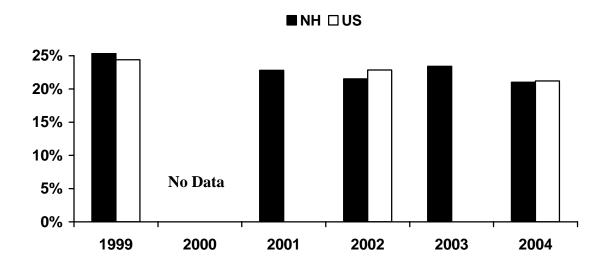
N/A = Not available if the unweighted sample size for the denominator was < 50 or the CI half width was > 10 for any cell

Table 8. Adults aged 65 years and older who have lost all of their natural teeth due to decay or gum disease – New Hampshire, 2004

	Percent	95% Confidence Interval
All	21.0	18.2-23.9
Male	21.3	16.8-25.8
Female	20.8	17.2-24.5
<\$15,000	40.5	31.7-49.3
\$15,000-24,999	32.1	24.9-39.2
\$25,000-34,999	17.7	10.0-25.3
\$35,000-49,999	12.1	6.0-18.2
\$50,000+	6.3	2.2-10.4
<12 years of education	N/A	N/A
12 years of education	23.1	18.3-27.8
13-15 years of education	15.1	9.8-20.4
16+ years of education	9.7	5.6-13.7

N/A = Not available if the unweighted sample size for the denominator was < 50 or the CI half width was > 10 for any cell

Figure 4. Adults aged 65 years and older who have lost all of their natural teeth due to decay or gum disease – New Hampshire, 1999-2004 and United States, 1999, 2002 and 2004



**Comment:** There were strong associations between complete tooth loss (i.e., edentulism) and income and educational attainment. Persons with lower incomes and less education were more likely to report loss of all their teeth. Edentulism can reduce quality of life, self-image, and daily functioning; it is preventable with good oral hygiene, fluoridated water, and regular dental care. Patient and provider attitudes towards tooth retention also play an important role.

**Method:** This question was asked of all survey participants. Data analysis excluded persons responding "Don't Know/Not Sure" or "Refused" to this question and was restricted to person ≥65 years of age. Data were available for New Hampshire for 1999, 2001–2004, and for the United States for 1999, 2002 and 2004.

**Healthy People 2010:** The *Healthy People 2010* objective is to reduce the proportion of adults 65 to 74 years of age who have had all their natural teeth extracted to 20% (#21-4). For New Hampshire in 2004, 19.2% (95% Confidence Interval 15.6%-22.8%) of persons 65 to 74 years of age had lost all their teeth.

**Healthy New Hampshire 2010:** No objective.

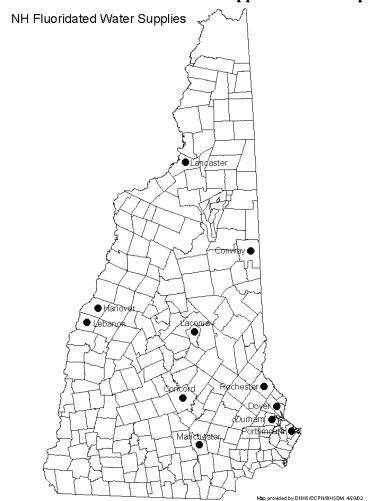


Figure 5. Cities with Fluoridated Public Water Supplies - New Hampshire, 2005

**Comment:** Some residents of the following towns receive water from a neighboring community with a fluoridated water supply: Conway (from Fryeburg, Maine); Rollinsford (from Dover); Lee (from Durham); Belmont and Gilford (from Laconia); Auburn, Bedford, Derry, Goffstown, Hooksett, and Londonderry (from Manchester), and Greenland, New Castle, Newington, and Rye (from Portsmouth).

Naturally occurring fluoride has been documented in water from many areas of New Hampshire. Because of variations in fluoride levels, individual wells should be tested to determine their fluoride content.

**Method:** Data on fluoridated community water systems is maintained by the Department of Environmental Services and the Department of Health and Human Services using the Water Fluoridation Reporting System (WFRS).

**Healthy People 2010:** Objective #21-9 is to increase the proportion of the U.S. population served by community water systems with optimally fluoridated water to 75%.

**Healthy New Hampshire 2010:** The *Healthy New Hampshire 2010* objective is to have 65% of the population served by community water systems with optimally fluoridated water. In New Hampshire in 2000, 43% of persons served by community water systems were receiving fluoridated water.

**Data Source:** New Hampshire Department of Environmental Services<sup>(5)</sup> and New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Community Health Services, Oral Health Program.

**Table 9. Population Receiving Fluoridated Public Water – New Hampshire and United States, 2000** 

	A	В	C
	Population	Population on public water supply system (B/A)	Population on public water supply system receiving fluoride (C/B)
New Hampshire	1,235,786	807,438 (65%)	347,007 (43%)
United States	281,421,906	246,120,616 (87%)	162,067,341 (66%)

**Comment:** New Hampshire has a smaller percentage of its population on a public water supply (65%) than does the United States (87%). New Hampshire also has a smaller percentage of its population on a public water supply who receive fluoridated water (43%) than does the United States (66%).<sup>(6)</sup>

**Method:** New Hampshire data on fluoridated community water systems is maintained by the Department of Environmental Services and the Department of Health and Human Services using the Water Fluoridation Reporting System (WFRS).

**Healthy People 2010:** The *Healthy People 2010* objective (#21-9) for the United States is to have 75% of the population served by community water systems with optimally fluoridated water. The percentage in 2000 was 66% ranging from a high of 100% in the District of Columbia to a low of 2% in Utah.<sup>(6)</sup>

**Healthy New Hampshire 2010:** The *Healthy New Hampshire 2010* objective is to have 65% of the population served by community water systems with optimally fluoridated water. In New Hampshire in 2000, 43% of persons served by community water systems were receiving fluoridated water.

**Data Source:** New Hampshire Department of Environmental Services<sup>(7)</sup>; New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Community Health Services, Rural Health and Primary Care Unit, Oral Health Program; Centers for Disease Control and Prevention; and United States Census.

Table 10. Number of persons treated and children receiving sealants in hospitaland community-based dental programs - New Hampshire, 2003-2004

Program	Number of Children and Adults Treated	% of Children and Adults Receiving Restorative Care	Number of Children and % of them Receiving Sealants
Ammonoosuc Community Health Svcs (Littleton)	84	48%	N/A
Capital Region Family Health Center (Concord)	1,304	82%	369 (28%)
Catholic Medical Center Poisson (Manchester)	1,149	15%	454 (26%)
Dental Health Works (Keene)	380	70%	202 (15%)
Dental Resource Center (Laconia)	2,290	18%	1,180 (17%)
Families First Dental Center (Portsmouth)	643	88%	191 (24%)
Greater Nashua Dental Connection (Nashua)	3,226	78%	1,968 (35%)
Healthreach Dental Center for Children (Exeter)	3,230	39%	3,205 (24%)
Lamprey Health Care (Raymond)	385	69%	231 (19%)
Total	12,591		7,800 (24%)

Table 11. Number of persons treated and children receiving sealants in hospitaland community-based dental programs - New Hampshire, 2004-2005

Program	Number of Children and Adults Treated	% of Children and Adults Receiving Restorative Care	Number of Children and % of them Receiving Sealants
Ammonoosuc Community	78	63%	N/A
Health Svcs (Littleton)			
Capital Region Family	1,091	86%	153 (32%)
Health Center (Concord)			
Catholic Medical Center	1,389	15%	785 (26%)
Poisson (Manchester)			
Dental Health Works	597	31%	427 (25%)
(Keene)			
Dental Resource Center	2,583	31%	1,041 (33%)
(Laconia)			
Families First Dental Center	862	59%	268 (21%)
(Portsmouth)			
Greater Nashua Dental	1,486	65%	832 (28%)

NH Department of Health and Human Services, Division of Public Health Services Bureau of Community Health Services Rural Health and Primary Care Section Oral Health Program NH ORAL HEALTH DATA, 2006

Program	Number of Children and	% of Children and Adults Receiving	Number of Children and % of them
	Adults Treated	Restorative Care	Receiving Sealants
Connection (Nashua)			
Healthreach Dental Center	3,660	37%	3,635 (21%)
for Children (Exeter)			
Lamprey Health Care	512	60%	367 (26%)
(Raymond)			
Community Health Service	155	48%	N/A
(Derry)			
Total	12,413	·	7,508 (27%)

**Comment:** These programs seek to provide services to persons who would otherwise have no access to dental care. The Poisson Dental Facility at Catholic Medical Center provides **emergency service only** to patients (mostly children) referred from 8 local agencies. In 2003-2004 the Dental Resource Center experienced a temporary staffing shortage that affected numbers of patients receiving restorative care. In 2004-2005 the Greater Nashua Dental Connection experienced a temporary staffing shortage that affected the number of children and adults treated. In 2004-2005 the Capital Region Family Health Center (Concord) was unable to use the New Hampshire Technical Institute Dental Clinic to serve children while the facility was being renovated.

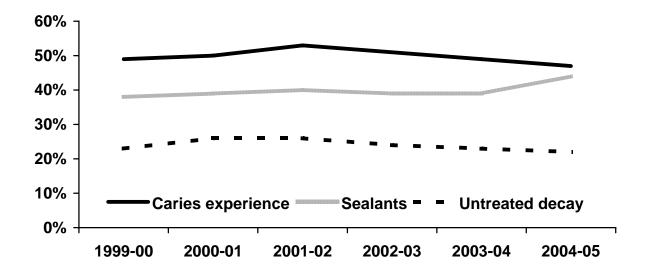
**Method:** Each program reports information to the state's oral health program on an annual basis.

**Healthy People 2010:** Objective #21-10 is to increase the proportion of children and adults who use the oral health care system each year to 56%. Objective #21-8a is to increase the proportion of children aged 8 years who have received dental sealants on their molar teeth to 50% (#21-8a).

**Healthy New Hampshire 2010:** The *Healthy New Hampshire 2010* objective is to increase the proportion of children in third grade who have received dental sealants on their permanent molar teeth. The specific target has not yet been established. In 2004, 42.5% of children in third grade in New Hampshire had dental sealants.

**Data Source:** New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Community Health Services, Oral Health Program.

Figure 6. Percent of second and third grade students screened in school-based dental programs with caries experience, sealants, and untreated decay, by school year – New Hampshire, 1999-2005



**Comment:** The percent of students screened who had caries experience, sealants and untreated decay has remained stable over the past several years. Because these results represent only students participating in school-based programs, the data are not representative of all 2<sup>nd</sup> and 3<sup>rd</sup> graders in New Hampshire.

**Method:** Data are reported to the state's oral health program by each school-based dental program at the end of the academic year.

**Healthy People 2010:** The *Healthy People 2010* objectives are to reduce the proportion of 6 to 8 year old children with dental caries experience to 42% (#21-1b), to reduce the proportion of 6 to 8 year old children with untreated dental decay to 21% (#21-2b), and to increase the proportion of children aged 8 years who have received dental sealants on their molar teeth to 50% (#21-8a).

**Healthy New Hampshire 2010:** The *Healthy New Hampshire 2010* objective is to increase the proportion of children in third grade who have received dental sealants on their permanent molar teeth. The specific target has not yet been established. In 2004, 43% of children in third grade in New Hampshire had dental sealants.

Data Source: New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Community Health Services, Oral Health Program; Manchester Health Department.

Table 12. Number of  $2^{nd}$  and  $3^{rd}$  grade students screened and percent with untreated decay, caries experience, and sealants by school-based program – New Hampshire, 2003-2004

Site	# Students	# Screened students (%)	# Screened students with untreated decay (%)	# Screened students with history of decay (%)	# Screened students with sealants (%)
Alexander Eastman	2,936	1,227 (42%)	163 (13%)	460 (37%)	568 (46%)
Cheshire Smiles	1,141	765 (66%)	135 (18%)	341 (45%)	395 (52%)
Claremont	266	219 (82%)	88 (40%)	130 (59%)	84 (38%)
Coos County Family Hth Svc	313	197 (63%)	60 (30%)	93 (47%)	99 (50%)
Family First "Seacoast"	359	204 (57%)	24 (12%)	114 (56%)	111 (54%)
Frisbee Memorial Hospital	1,361	644 (47%)	201 (31%)	354 (55%)	300 (47%)
Health First Family Care Ctr	804	294 (37%)	75 (26%)	170 (58%)	44 (15%)
Healthreach Mobile Dent Pgm	1,590	347 (22%)	65 (19%)	188 (54%)	183 (53%)
Lakes Region	586	283 (48%)	69 (24%)	128 (45%)	83 (29%)
Lamprey Health Care	861	323 (38%)	117 (36%)	178 (55%)	154 (48%)
Monadnock Healthy Teeth	208	69 (33%)	13 (19%)	20 (29%)	11 (16%)
Manchester	1,461	1,371 (94%)	398 (29%)	772 (56%)	349 (25%)
Milford	419	419 (100%)	35 (8%)	210 (50%)	185 (44%)
Rock Dental Clinic	550	298 (54%)	51 (17%)	96 (32%)	104 (35%)
Speare Memorial Hospital	398	194 (49%)	70 (36%)	154 (79%)	80 (41%)
Upper Conn. Miles	127	101 (80%)	25 (25%)	63 (62%)	51 (50%)
VNA Hospice "School"	675	426 (63%)	70 (16%)	150 (35%)	68 (16%)
Total	14,055	7,372 (52%)	1,659 (23%)	3,621 (49%)	2,869 (39%)

Table 13. Number of  $2^{nd}$  and  $3^{rd}$  grade students screened and percent with untreated decay, caries experience, and sealants by school-based program – New Hampshire, 2004-2005

Site	# Students	# Screened students (%)	# Screened students with untreated decay (%)	# Screened students with history of decay (%)	# Screened students with sealants (%)
Alexander Eastman	2,216	1,136 (51%)	201 (18%)	484 (43%)	650 (57%)
Cheshire Smiles	1,079	696 (65%)	137 (20%)	348 (50%)	360 (52%)
Claremont	283	103 (36%)	28 (27%)	53 (51%)	25 (24%)
Coos County Family Hth Svc	310	156 (50%)	40 (26%)	90 (58%)	69 (44%)
Family First "Seacoast"	327	185 (57%)	18 (10%)	87 (47%)	111 (60%)
Frisbee Memorial Hospital	1,285	687 (53%)	242 (35%)	379 (55%)	317 (46%)
Health First Family Care Ctr	787	135 (17%)	30 (22%)	70 (52%)	32 (24%)
Healthreach Mobile Dent Pgm	1,900	590 (31%)	91 (15%)	252 (43%)	373 (63%)
Lakes Region	598	67 (11%)	14 (21%)	29 (43%)	24 (36%)
Lamprey Health Care	1,006	273 (27%)	127 (47%)	155 (57%)	155 (57%)
Monadnock Healthy Teeth	624	273 (44%)	66 (24%)	96 (35%)	117 (43%)
Manchester	991	869 (88%)	263 (30%)	522 (60%)	220 (25%)
Milford	425	425 (100%)	10 (2%)	115 (27%)	266 (63%)
Rock Dental Clinic	480	326 (68%)	68 (21%)	145 (44%)	0
Speare Memorial Hospital	411	149 (36%)	55 (37%)	109 (73%)	67 (45%)
Upper Conn. Miles	130	97 (75%)	20 (21%)	45 (46%)	53 (55%)
VNA Hospice "School"	691	432 (63%)	50 (12%)	142 (33%)	83 (19%)
White Mountain Health	327	58 (18%)	13 (22%)	20 (34%)	15 (26)
Total	13,870	6,657 (48%)	1,473 (22%)	3,141 (47%)	2,937 (44%)

**Comment:** Because these results represent only students participating in school-based programs, the data are not representative of all 2<sup>nd</sup> and 3<sup>rd</sup> graders in New Hampshire. Rock Dental Clinic did not provide sealant data for the 2004-2005 school year.

**Method:** Each school-based dental program reports data to the state's oral health program at the end of the academic year.

**Healthy People 2010:** The *Healthy People 2010* objectives are to reduce the proportion of 6 to 8 year old children with dental caries experience to 42% (#21-1b), to reduce the proportion of 6 to 8 year old children with untreated dental decay to 21% (#21-2b), and to increase the proportion of children aged 8 years who have received dental sealants on their molar teeth to 50% (#21-8a).

**Healthy New Hampshire 2010:** The *Healthy New Hampshire 2010* objective is to increase the proportion of children in third grade who have received dental sealants on their permanent molar teeth. The specific target has not yet been established. In 2004 43% of children in third grade in New Hampshire had dental sealants.

**Data Source:** New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Community Health Services, Oral Health Program; Manchester Health Department.

Table 14. Students receiving sealants through the school-based dental programs – New Hampshire, 2003-2005

Program	School year 2003-2004	School year 2004-2005
Alexander Eastman	8	98
Cheshire Smiles	89	77
Claremont	0	18
Coos County Family Hth Svc	0	14
Family First "Seacoast"	0	25
Frisbee Memorial Hospital	0	35
Health First Family Care Ctr	43	22
Healthreach Mobile Dent Pgm	80	76
Lakes Region	47	2
Lamprey Health Care	0	10
Monadnock Healthy Teeth	0	32
Manchester	52	70
Milford	16	9
Rock Dental Clinic	0	11
Speare Memorial Hospital	43	34
Upper Conn. Miles	7	9
VNA Hospice "School"	0	16
Total	385	558

NH Statewide Sealant Project	N/A	78
6 Pilot Sites		

**Comment:** Nine (50%) of 18 school-based programs offered sealants to students in 2003-04. With the implementation of the New Hampshire Statewide Sealant Project 2004-2005, all New Hampshire school dental programs incorporated sealant application as a basic program element. Funded by the Endowment for Health, the New Hampshire Statewide Sealant Project expanded school-based sealant application to schools without established dental programs in Concord, Nashua, Alstead and the North Country.

Health First Family Care- In school year 2003-2004 students received sealants through a contract with a local dental practice. In 2004-2005 students were referred to the Dental Resource Center in Laconia for sealants and transportation became a barrier to sealant application.

Lakes Region Dental Resource Center (DRC)- Sealants applied through school-based referrals to the DRC were counted with data for the DRC community-based dental program. Two students who were not already patients at the DRC were recorded with school-based dental program data.

Milford – As students find "dental homes" through the school-based dental programs, fewer need protective sealants applied in the schools.

**Method:** Data are reported to the state's oral health program by each school-based dental program at the end of the academic year.

**Healthy People 2010**: The Healthy People 2010 objective is to increase the proportion of children aged 8 years who have received dental sealants on their molar teeth to 50% (#21-8a).

**Healthy New Hampshire 2010:** The *Healthy New Hampshire 2010* objective is to increase the proportion of children in third grade who have received dental sealants on their permanent molar teeth. The specific target has not yet been established. In 2004 43% of children in third grade in New Hampshire had dental sealants.

**Data Source:** New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Community Health Services, Oral Health Program.

## THIRD GRADE ORAL HEALTH SURVEY

Table 15. Percent of  $3^{\rm rd}$  graders with untreated decay, caries experience, and sealants – New Hampshire, 2004

	Percentage	95% Confidence Interval
Untreated decay	24.1	18.0-30.2
Caries experience	51.0	45.7-56.3
Sealants on permanent molars	42.5	36.9-48.1
Treatment urgency		
No obvious problem	76.4	70.0-82.8
Early dental care	18.4	13.3-23.5
Urgent care	5.2	3.2-7.2

**Comment:** Results from the 2004 New Hampshire Third Grade Oral Health Survey are similar to those collected in 2001. Results from other states that have conducted oral health surveys in schools are available at: http://www.cdc.gov/nohss/.

**Method:** The survey was conducted during September 2003-April 2004. The survey design was adapted from the *Basic Screening Surveys* developed by the Association of State and Territorial Dental Directors.

**Healthy People 2010:** The *Healthy People 2010* objectives are to reduce the proportion of 6 to 8 year old children with dental caries experience to 42% (#21-1b), to reduce the proportion of 6 to 8 year old children with untreated dental decay to 21% (#21-2b), and to increase the proportion of children aged 8 years who have received dental sealants on their permanent molar teeth to 50% (#21-8a).

**Healthy New Hampshire 2010:** The *Healthy New Hampshire 2010* objective is to increase the proportion of children in third grade who have received dental sealants on their permanent molar teeth. The specific target has not yet been established. In 2004 42.5% of children in third grade in New Hampshire had dental sealants.

**Data Source:** New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Community Health Services, Oral Health Program.

Figure 7. New cases of oral cancer by gender – New Hampshire, 2001

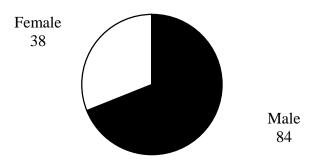


Figure 8. New cases of oral cancer by gender – New Hampshire, 2002

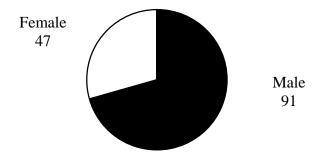


Figure 9. New cases of oral cancer by gender - New Hampshire, 2003

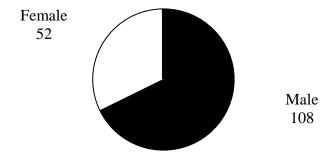


Table 16. Incidence rate of oral cancer by gender – New Hampshire, 2001-2003

	Age-adjusted incidence rate (per 100,000) New Hampshire		
	2001	2002	2003
All 95% CI	9.9 (8.2-11.8)	10.7 (8.9-12.5)	12.1 (10.2-13.9)
Male 95% CI	14.8 (11.7-18.5)	15.3 (12.3-18.8)	17.6 (14.2-21.0)
Female 95% CI	6.1 (4.4-8.4)	6.9 (5.1-9.2)	7.4 (5.5-9.7)

**Comment:** Oral cancer consists of cancer of the lips, salivary glands, mouth, and throat. Approximately 75% of oral cancer is attributable to tobacco and alcohol use. Efforts to decrease oral cancer are dependent on control of these two risk factors along with early detection.

**Method:** Data are from the state cancer registry.

**Healthy People 2010:** Objective #3-6 is to reduce the oropharyngeal death rate to 2.7 per 100,000 population.

Healthy New Hampshire 2010: No objective.

Figure 10. Mortality from oral cancer by gender – New Hampshire, 2001

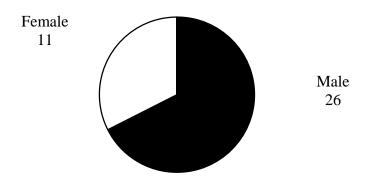


Figure 11. Mortality from oral cancer by gender – New Hampshire, 2002

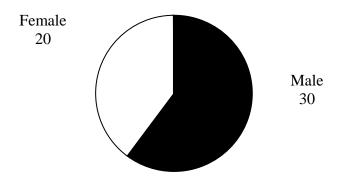


Table 17. Mortality rate from oral cancer by gender – New Hampshire, 2001-2002

	Age-adjusted mortality rate (per 100,000) New Hampshire		
	2001 2002		
All 95% CI	3.0 (2.1-4.2)	3.9 (2.9-5.2)	
Male 95% CI	4.9 (3.2-7.4)	5.4 (3.6-7.9)	
Female 95% CI	1.6 N/A	2.7 (1.7-4.5)	

**Comment:** Oral cancer consists of cancer of the lips, salivary glands, mouth, and throat. Approximately 75% of oral cancer is attributable to tobacco and alcohol use. Efforts to decrease oral cancer are dependent on control of these two risk factors along with early detection.

NH Department of Health and Human Services, Division of Public Health Services
Bureau of Community Health Services
Rural Health and Primary Care Section
Oral Health Program
NH ORAL HEALTH DATA, 2006
December, 2007

**Method:** Data are from death certificates.

**Healthy People 2010:** The *Healthy People 2010* objective (#3-6) is to reduce the oropharyngeal cancer death rate to 2.7 per 100,000 (age-adjusted to the 2000 population).

**Healthy New Hampshire 2010:** No objective.

#### YOUTH TOBACCO SURVEY

Table 18. Middle and high school students who reported that a dentist or someone in a dentist's office talked to them about the danger of tobacco use during the past 12 months – New Hampshire, 2004

	Percent	95% Confidence Interval			
Middle School Students – Grades 6-8					
Counseled	11.1	9.6-12.7			
Not counseled	79.4	77.0-81.8			
Did not visit dentist	9.5	7.6-11.4			
<u>High School Students – Grades 9-12</u>					
Counseled	10.0	8.5-11.4			
Not Counseled	80.6	78.6-82.6			
Did not visit dentist	9.4	7.9-11.0			

**Comment**: Tobacco is the leading cause of preventable mortality and a major determinant of oral health. Dentists and dental hygienists should routinely counsel their patients, especially adolescents, about the dangers of tobacco use.

Middle school students have been counseled similar to the high school students about the danger of tobacco use. There were no significant differences in having been counseled by either gender or grade level.

Approximately 9.5% of students in grades 6-12 did not see a dentist in the past year.

**Method:** Data are based on self-reports of a sample of students in public schools in New Hampshire.

**Healthy People 2010:** Objective #27-2a is to reduce tobacco use by adolescents to 21%. Objective #1-3 is to increase the proportion of people appropriately counseled about health behaviors.

**Healthy New Hampshire 2010:** Reduce the percentage of high school students who report current tobacco use to 24%. Increase the percentage of high school students who report never using tobacco to 43%.

**Data Source:** New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Prevention Services, Tobacco Prevention and Control Program.

# NATIONAL ORAL HEALTH SURVEILLANCE SYSTEM

Indicator	New Hampshire	United States	Healthy People 2010
Annual dental visit in	77% (2004)	70% (2004)	
persons ≥ 18 years			
Annual teeth cleaning in	78% (2004)	69% (2004)	
persons ≥ 18 years			
Complete tooth loss in	21% (2004)	21% (2004)	20% among 65-74
persons $\geq$ 65 years			years old
Oral cancer mortality rate	3.3 (1996-00)	2.6 (2001)	2.7
per 100,000 persons			
Untreated caries in	24% (2004)		21%
children 6-8 years			
History of decay in	51% (2004)		42%
children 6-8 years			
Sealants in children 8	43% (2004)		50%
years			
Fluoridation of public	43% (2002)	66% (2000)	75%
water supplies			

**Comment:** From the eight indicators in the National Oral Health Surveillance System<sup>(2)</sup>, New Hampshire is doing reasonably well for some of the measures. However, additional progress is needed to reach *Healthy people 2010* objectives.

#### CONCLUSIONS

The data in this report indicate that oral health problems, such as dental caries in children and tooth loss in adults, are still common in New Hampshire. Effective preventive measures such as water fluoridation and dental sealants are underutilized. The data also show marked disparities in oral health by socioeconomic status. Individuals who have lower incomes or less education are substantially more likely report having dental problems and less likely to report having had dental care. Additional progress needs to be made if New Hampshire is to achieve the state and national oral health objectives established for the year 2010.

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